

Governance and Economic Performance, Delegated Public Drinking Water Services in the Municipality Of Dassa-Zoume (Benin)

Rene Ayeman Zodekon¹, Ernest Amoussou¹⁻² & Leocadie Odoulami³

^{1,3}Pierre PAGNEY Laboratory, Climate, Water, Ecosystem and Development (LACEEDE) / DGAT / FLASH / University of Abomey-Calavi (UAC) BP 526 Cotonou, Republic of Benin (West Africa)

²Department of Geography and Regional Planning, University of Parakou, Parakou, Benin,

Abstract: The delegation of management of water services is part of an alternative logic to the community management model of drinking water supply networks. This method of managing water services is faced with numerous irregularities in the municipality of Dassa-Zoumé. This research analyzes the mode of governance by delegation of water services with a view to determining its performance indicators.

The method used is based on data collection from 50 delegates (public and private), 50 households from user associations and 10 resource persons. The data collected was processed and the results obtained were analyzed with the SWOT model.

Results show that 298 FPMH and 6 AEV are delegated to public and private operators. The delegation of AEV is made to private operators through the afterimage contract. On the other hand, simple works are delegated to natural and legal persons. The latter are called upon to pay a monthly sum of 5,000 F to the town hall. The analysis of the operating account of the private delegates showed that the income from the sale of water amounted to 13,903,784 FCFA in 2017. They fell to 12,141,526 FCFA in 2018 before falling to 13,830,386 FCFA in 2019. With its receipts, the term of extinction of debts and renewal of works is 17 years for AEV and 200 years for FPMH.

The delegation of the water service is confronted with structural problems such as, the lack of intervention of the private sector in the field, the ignorance of the logical framework of intervention of the actors, the vagueness maintained in the granting of the market to the private one which no longer obliges the delegatee to properly complete their specifications. A situation which explains the high cost of water to users. This way of managing the water service is an opportunity for its sustainability.

Key-words: Dassa-Zoume; organizing authority, public service delegation, governance, performance

I. INTRODUCTION

Benin differs from other developing countries by the extreme decentralization of public drinking water and sanitation services, also leaving to the communities responsible for them the choice of management mode. Here again, public service delegation constitutes a successful form of management which allows the local authority to transfer the

risks inherent in the management of the service while retaining its prerogatives as a public authority.

In the municipality of Dassa-Zoumé, the delegation of management of water supply networks characterized by the establishment of a contractual relationship between a delegating authority and a delegated manager in order to deliver a water service from these facilities.

Common in urban hydraulics, this approach was introduced in rural hydraulics in the early 2000s as an alternative to community management, the performance of which, after twenty years of practice, has generally not been up to the challenges (Zodékon et al. 2018). Thus, the management delegation provided an appropriate framework for the participation of the private sector while addressing key issues that had not yet been addressed in rural areas such as the heritage status of installations, monitoring operator performance or even regulation (WSP, 2010).

DWS networks are playing an increasingly strategic role in water supply since they serve at least a quarter of the populations living in rural areas and in small centers. In this context, the delegation of management is part of a logic of alternative to the model of community management and opening up to the private sector in order to improve the sustainability of the water service. This research deals with "Governance and performance of public services delegated to drinking water in the municipality of Dassa-Zoumé".

The town of Dassa-Zoumé, capital of the department of hills. It lies between 7° 29' and 7° 57' North latitude and between 2° 9' and 2° 13' East longitude (Figure 2). It covers an area of 1,711 km² and has 112,122 inhabitants (INSAE, 2013). It is bounded to the north by the commune of Glazoué, to the south by the commune of Djidja, to the east by the communes of Savè and Kétou, and to the west by the commune of Savalou (figure 13). It is surrounded by hills to the east and receives less rainfall than the municipality of Savè. Thus, the average annual rainfall is around 1,100 mm (Zodékon A. R., 2016).

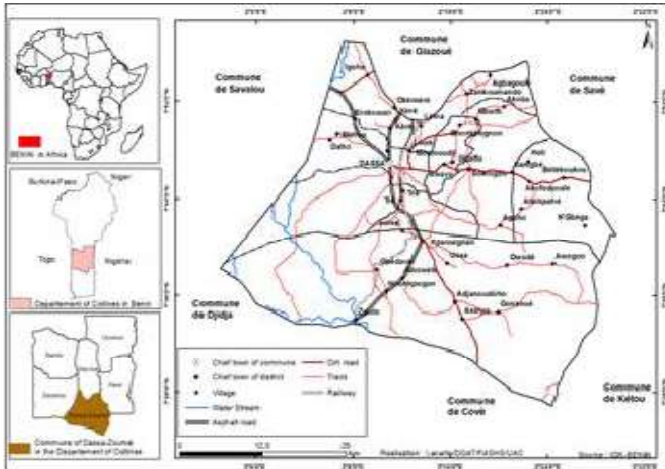


Figure 1. Geographical situation of the commune of Dassa

It covers an area of 1711 km² and has 112,118 inhabitants in 2013 (INSAE, 2013). The average annual rainfall amounts in said common balance around 1100 mm; temperatures vary between 20 ° C and 37 ° C and can sometimes rise to 38 °

II. MATERIALS AND METHODS

As part of this research, socioeconomic and regulatory data were used. They take into account the delegation contract, the price of water transfer to subscribers, users' assessments with regard to the delegation of the public water service. The business delegation contract was analyzed in order to highlight its strengths and weaknesses. These data were collected from the delegates, the Dassa-Zoumé Town Hall and from water users. The collection was made possible thanks to the documentary research carried out in the documentation centers of the Town Hall of Dassa-Zoumé, of the water Service des Collines and the Ministry of Water, to the field surveys carried out with 80 delegates (public and private), 50 households from users and 10 resource persons. Of these resource persons, three gave telephone interviews, given their unavailability on the one hand and the health situation linked to the Corona virus (Covid-19) pandemic on the other. The questionnaire, the interview guide, the observation grid and a TECNO K7 brand laptop are the materials and tools that served as the basis for data collection.

Method for evaluating the performance of public drinking water services.

Today, the notion of performance has broadened to take into account the "social responsibility" or social responsibility of the company vis-à-vis its stakeholders. With the emergence of sustainable development, the concept of global performance emerged in Europe, after having been the same in the United States and will soon reach Africa and Benin in particular. The

figure 2 shows the method for evaluating the overall performance of the sustainability of public drinking water services

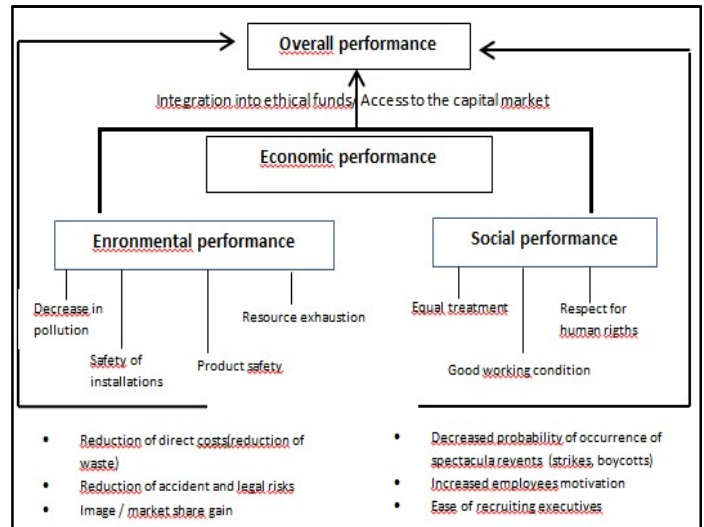


Figure 2: Method for assessing the performance of PFICs

Source: Adapted from GUERIN SCHNEIDER L., 2001

The Sphinx 4.5 software made it possible to develop the database, to process the data collected. This treatment resulted in the demonstration of the chi² test between the problems of delegation of drinking water services and the typology of water pumping services available in the municipality of Dassa-Zoumé.

III. RESULTS AND DISCUSSION

These results take into account the analysis of the mode of governance by delegation of water services and the performance indicators achieved.

3.1-Governance by delegation of Public Drinking Water Services in the municipality of Dassa-Zoumé

It takes into account the analysis of the institutional framework and the delegated mode of water services.

3.1.1-Institutional framework for governance of water services

The governance of water services in Benin in general and in the municipality of Dassa-Zoumé in particular is reacted by an institutional framework undergoing reform. In fact, with the aim of improving universal access to drinking water for all by 2021, the government of Benin, through its Action Program, has carried out profound reforms of the institutional framework. Figure 3 presents the new institutional framework for the governance of public drinking water services.

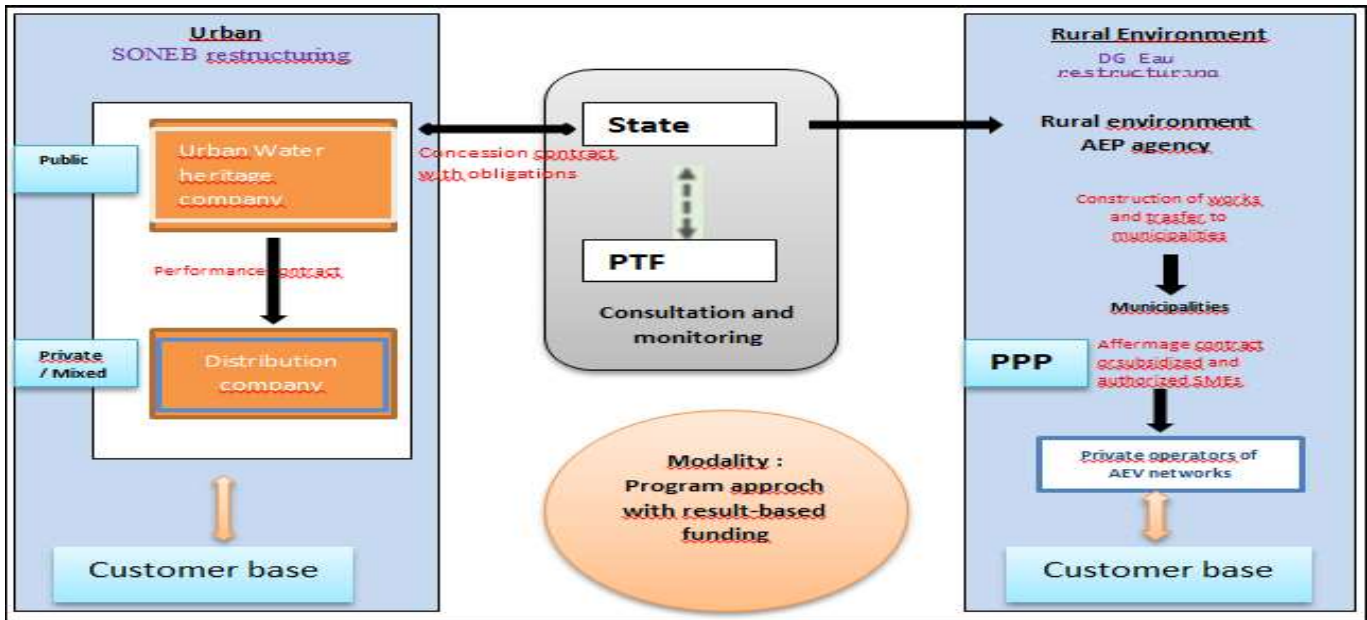


Figure 3: New institutional governance framework for DWS in rural and urban areas

Source: Field survey, June 2019

Figure 3 presents the new governance framework for Drinking Water Supply. Its analysis shows that the State and the TFPs play a role in the consultation and monitoring framework for a reorganization of the drinking water supply in urban and rural areas. We must describe the framework with the main components before the analysis.

3.1.2-Analysis of the delegated management of public drinking water services

- Management by delegation of simple structures

Delegation is a form of management in which the municipality signs a contract with a natural or legal person called a delegatee having a legal existence for the management of simple works. Figure 4 presents the logical framework of the actors in the delegation of water services.

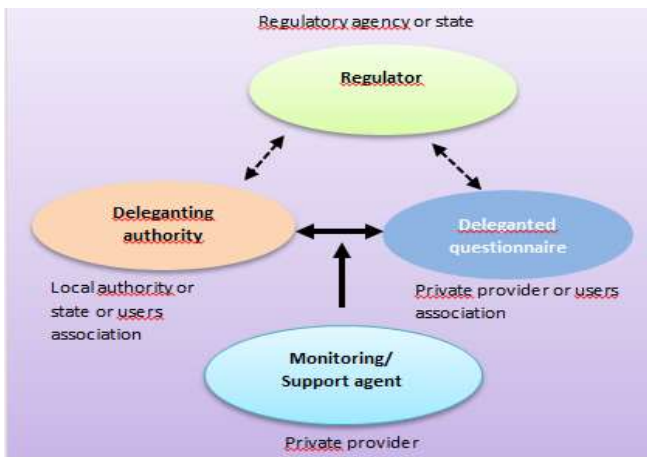


Figure 4: New institutional governance framework for DWS in rural and urban areas

Source: Field survey, June 2019

Figure 4 presents the logical framework of the actors involved in the delegation of water points. Its analysis shows that there is a contractual relationship between a delegating authority that owns the facilities and the delegated manager responsible for providing the water service under the conditions defined by the delegation contract.

In the study sector, the delegatee gives a fee of 7.25 USD per month or 87 USD per year to the town hall. It is the town hall's head of the economic and market affairs department who is responsible for collecting funds from the delegates and who deposits them in the town hall's account in the water section. The delegatee has several roles, which are: to operate the works and sell water to consumers at a rate fixed by the contract; ensure the operation, routine servicing and maintenance of the system; pay a fee to the town hall per month or per year.

In this management mode, the costs related to breakdowns of less than 43.48 USD are the responsibility of the delegatee, but those greater than 43.48 USD are borne by the town hall. The repair craftsmen are recruited by the town hall and trained by the village water supply service. This management method is struggling to develop in the municipality of Dassa-Zoumé. Households are reluctant to put this mode into practice. They themselves prefer to agree to pay the royalties that the delegatee should pay to the town hall.

- Management method by delegation of complex water supply structures: case of Village Water Supply (AEV)

The complex water supply structures such as the Adductions d'Eau Villageoises (AEV) and the Autonomous Water Stations (PEA). The municipality of Dassa-Zoumé has 09 AEV (table) with 93 standpipes, 80 of which are functional. The table shows the AEVs and the delegated companies.

Table I: AEV and delegated companies

N°	AEV	Delegated companies
1	Gbaffo	Concise
2	Kèrè	Ets Badjimou and son
3	KPAKPA AGBAGOULE	Management Committee
4	Minifi	AIR-Benin
5	Ouissi	Management Committee
6	Panouignan	COGEBE
7	Soclogbo	LIVE
8	Tré	Ets Flourishing
9	Vèdji	Management Committee

Source: Field survey, April 2020

Analysis of Table I show that the municipality of Dassa-Zoumé has 09 AEV. Of its AEV, 06 are under leasing contract and managed by various delegates. On the other hand, the remaining three are managed by the management committees. These AEV have 93 standpipes, of which 13.98% are non-functional.

The owner of the town hall of Dassa-Zoumé signs an affermage contract with the company that won the tender dossier previously launched. The delegated company, called the farmer, is responsible for the operation and maintenance of the equipment entrusted to it. A farmer can however take charge of part of the renewal of certain equipment. They are delegated to a farmer. Only in the face of resistance from the population of Ouissi, the village's EVA is managed by the community. Vèdji's AEV is in a trial period by a committee before launching DAO for the recruitment of a delegate. Regarding the AEV of Akpakpa-Agbagoulè, the delegate resigned the contract with the contracting authority, the Town Hall. Apart from these 03 AEV, the others are put under the affermage contract.transition

3.2. Performance of delegated public drinking water services in the municipality of Dassa-Zoume

3.2.1- Economic and financial analysis / forecast operating account

The economic analysis was carried out on the basis of the cost of their implementation, production forecasts, various operating and renewal costs and the selling prices of water. The management of Village Water Adductions is based on the leasing of water points and management by committee. Table II shows the revenue from the sale of water at the point level.

Table II: Revenue en USD

AEV	2017	2018	2019
TRE	3048,83	3027,65	3318,34
MINIFI	2704,17	1141,12	1118,26
SCOLOGBO	1643,62	1762,20	2084,17
KERE	1992,29	1376,23	1662,55
GBAFFO_AWAYA	105,32	708,60	472,12

KPAKPA	1546,07	1458,73	867,33
PANOUGINAN	9110,11	8121,88	9673,95
KPINGNI	0,00	0,00	847,32
OUISSI	0,00	0,00	0,00
TOTAL (USD)	20150,41	17596,41	20044,04

Source: Field survey, April 2020

Analysis of Table II shows that the AEVs of the municipality of Dassa-Zoume record various annual economic performances depending on the operating mode in place. In fact, in 2017, revenues from the sale of water amounted to 20150, 41 USD. They will drop to 17596,41 USD in 2018 before returning to 20044,04 USD in 2019. The operating and investment costs take into account the costs of supply (in generators, electrical energy, and school panels), various repairs, and payrolls (Figure 5).

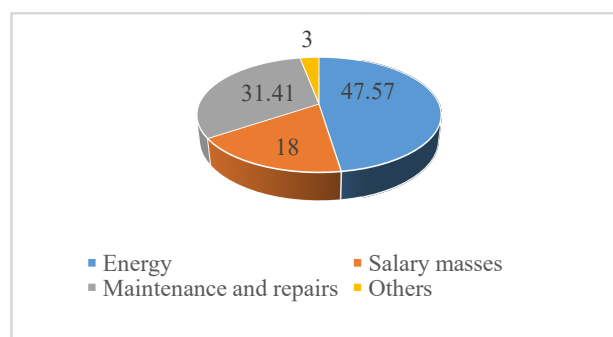


Figure 5: Percentage of "Drinking water" charges, year 2019
Source: Field survey, April 2020

The figure 5 shows the share of costs linked to the management of water services in the municipality of Dassa-Zoumé. It appears that the charges related to the management of services include energy charges (47.57 %), maintenance and repair costs (31.43 %), payrolls (18 %) and other charges which are of (3%). These different charges amount respectively to 5993.41 USD in 2017, 7065.76 USD in 2018 and 8707.81 USD in 2019. The figure 6 shows the difference between water revenue and the operating cost.

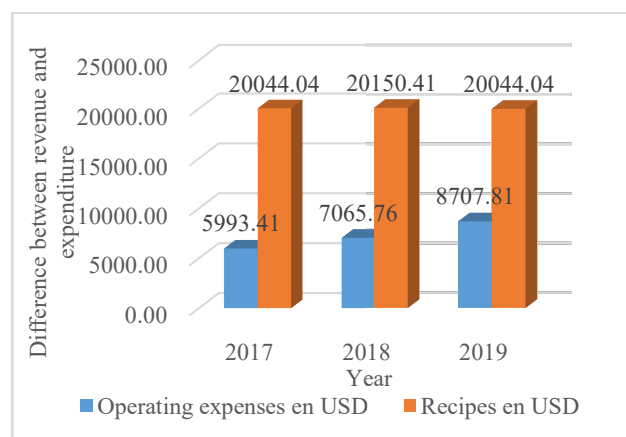


Figure 6: Difference between water revenue and operating cost
Source: Field survey, April 2020

The figure 6 shows the comparative evolution of invoiced water receipts and the operating cost of AEVs over the 2017-2019 period. Its analysis shows that the invoiced water revenues greatly exceed operating expenses. Indeed, operating expenses represent only 29.74 % in 2017; 40.15 % in 2018; and 43.44 % in 2019 of water bills sold. It therefore appears that the performance is more or less brilliant but does not preserve the sustainability of the service in view of the increase in expenses related to maintenance and operation of the service. The table below presents the performance indicators of the water service in the municipality of Dassa-Zoume.

Table III: Performance indicators linked to public drinking water services

AEV performance indicators (PIs)	2019
Theoretical cost of the municipality's AEV	347826.08 USD
Water recipe	20044.03 USD
Operating and investment cost	5993,41 USD
Debt extinction period	17 Years

Table III presents the performance indicators related to the sustainability of the water service. It appears that the drinking water finances linked to the AEV are currently good, but investments for new boreholes are to be expected, which will greatly increase the duration of the debt extinction. The physical renewal of networks is less than the amortization period of around 40 years provided for in the accounts (Lejars C. and Canneva G., 2009). An increase in the renewal of drinking water networks therefore seems necessary since it would partially absorb the excessive losses of the network. The table presents the financial indicators to the delegation of boreholes equipped with human-powered pumps.

Table IV: Performance indicators related to water services

Performance indicators of delegated FPMH	2019
Theoretical cost of delegated FPMH	17391.31
Water price billed	86.95
Operating and investment cost	0
Debt extinction period	200 ans

The analysis of this table IV shows that the finances of drinking water related to FPMH are currently good, but the annual price of water transfer is revised upwards, which would reduce the duration of the extinction of the debt that is 200 years old. The physical renewal of networks is less than the amortization period of around 40 years provided for in the accounts (Lejars C. and Canneva G., 2009).

Discussion

The governance of drinking water services in Benin has undergone profound institutional reforms since 2016. It is characterized by the creation of three institutions in urban areas: the State, the Heritage Company (SP) and the

Exploitation Company (SE) and a National Drinking Water Supply Agency in Rural Areas (ANAEP -MR) which must manage the public drinking water services. In the same sense (Boukhari S., 2018) in his thesis entitled “The sustainable management of water and sanitation services in Algeria”, it came to pass that the sustainability of water services implies, that existing institutional structures have the capacity to persist over time and continue to perform their duties over the long term. These structures would include all objectives related to stakeholder issues, transparency, citizen participation in the decision-making process, effectiveness and efficiency of measures taken. It highlights that the relevant governance of SEPAs implies the existence of city planning.

The management of public drinking water services in the municipality of Dassa-Zoumé still has to respond to three major challenges: the appropriation of the concept of management delegation by local actors, the securing of the continuity of service and the implementation effective regulation of water service in rural areas. Which are not the same with the research of (Yadav et al., 2014). Indeed, (Yadav et al., 2014), by studying in their article the “Performance Evaluation of Water Supply Services in Developing Country: A Case Study of Ahmedabad City”, identify, long-term climate change, population growth, the aging of drinking water and sanitation networks, the unplanned and rapid growth of urban areas and economic development such as the challenges facing drinking water and sanitation services (SEPA). It is in this same logic that, (Sharma *et al.*, 2010) in their article entitled “Role of decentralized systems in the transition of urban water systems) have shown that population growth has led to increasing urbanization and pollution. and have contributed to ecological damage, urban flooding. The economic performance indicators of drinking water services in the municipality of Dassa-Zoumé are characterized by an increase in the debt extinction rate which varies between 17 years for AEVs and 200 years for FPMH. These rates are much higher than those obtained by (Lejars and Canneva, 2008). But, these authors presented a tool for assessing the sustainability of water and sanitation services in France. They propose a first original approach to assess the sustainability of a service by linking the method of Performance Indicators (PI) to that of 3Es (Environment, Ethics and Economy), thus they proposed a list of criteria. for the three dimensions of SD for the case of sustainable management of water services.

IV. CONCLUSION

At the end of this research, it emerges that the governance of delegated drinking water services faces several challenges in the municipality of Dassa-Zoumé. Who are responsible for the poor performance recorded in terms of indicators. The current evolution of its performance indicators does not call into question the sustainability of water services in the municipality of Dassa-Zoumé. To achieve this, the water services sector must update existing legal and institutional reforms by including a three-fold requirement:

- The sustainability of the management of water resources;
- planning of hydraulic installations and concerted water management;
- The efficiency of the management of public water and sanitation services.

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